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10/506,634	09/03/2004	**Adrian Flanagan**	059864.00963	3420

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EXAMINER	
LOVEL, KIMBERLY M	

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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/506,634	FLANAGAN, ADRIAN	
	Examiner	Art Unit	
	KIMBERLY LOVEL	2167	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *15 September 2008*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *13-36* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *13-36* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☒ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Response to Amendment

1. This communication is in response to the Amendment filed on 15 September 2008.

2. Claims 13-36 are currently pending. In the Amendment filed 15 September 2008, claims 13, 25 and 26 are amended and claims 27-36 are new. This action is made Final.

3. The prior art rejections have been maintained.

Specification

4. The specification is objected to as failing to provide proper antecedent basis for the claimed subject matter. See 37 CFR 1.75(d)(1) and MPEP § 608.01(o). Correction of the following is required: The specification fails to define the term computer-readable medium.

35 USC § 101 - Clarifications

5. Claims 26-36 are directed towards an apparatus comprising a processor. The processor is construed as representing the necessary hardware required to constitute a machine or manufacture within the meaning of 35 USC 101.

Claim Rejections - 35 USC § 101

6. 35 U.S.C. 101 reads as follows:

> Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

7. **Claims 13-25** are rejected under 35 U.S.C. 101 because the claimed invention is directed to non-statutory subject matter.

8. **Claim 13** is directed towards a method. According to MPEP § 2106.IV.B, the first step in determining whether a claim recites patent eligible subject matter is to determine whether the claim falls within one of the four statutory categories of invention recited in 35 USC § 101: process, machine, manufacture and composition of matter. The latter three categories define "things" or "products," while a "process" consists of a series of steps or acts to be performed. For purposes of § 101, a "process" has been given a specialized, limited meaning the courts. Based on Supreme Court precedent and recent Federal Circuit decisions, a claimed process is patent-eligible under § 101 if: (1) it is tied to a particular machine or apparatus, or (2) it transforms a particular article into a different state or thing." Since the claim fails to meet the requirements mentioned above to place the claim in the statutory category of a process, the claim fails to fall within one of the four statutory categories (i.e., process, machine, manufacture, or composition of matter).

9. Since **claims 14-23** are dependent on claim 13 and fail to overcome the deficiencies of claim 13, the claims are rejected on the same grounds as claim 13.

10. **Claim 24** is directed towards a program product comprising a computer readable medium. The specification fails to provide support for the term "computer readable

medium.” Therefore, when the term is interpreted by one of ordinary skill in the art, the term can be construed to cover non-statutory embodiments which improperly include network transmission lines (interpreted as wired and wireless transmission), wireless transmission media, signals propagating through space, radio waves, infrared signals, etc.

See, e.g., In re Nuitjen, Docket no. 2006-1371 (Fed. Cir. Sept. 20, 2007)(slip. op. at 18) “A transitory, propagating signal like Nuitjen's is not a process, machine, manufacture, or composition of matter.' … Thus, such a signal cannot be patentable subject matter.”

Therefore, the claimed subject matter fails to fall within on of the four statutory classes.

11. **Claim 25** is directed towards an apparatus. However, it is noted that the use of the word “apparatus” does not inherently mean that the claim is directed towards a machine or article of manufacture. Each means of the claimed apparatus can be interpreted as comprising entirely of software per se according to one of ordinary skill in the art. Therefore, the claim language fails to provide the necessary hardware required for the claim to fall within the statutory category of an apparatus.

According to MPEP 2106:

> The claims lack the necessary physical articles or objects to constitute a machine or a manufacture within the meaning of 35 USC 101. They are clearly not a series of steps or acts to be a process nor are they a combination of chemical compounds to be a composition of matter. As such, they fail to fall within a statutory category. They are, at best, functional descriptive material *per se*.

12. To allow for compact prosecution, the examiner will apply prior art to these claims as best understood, with the assumption that applicant will amend to overcome the stated 101 rejections.

Claim Rejections - 35 USC § 102

13. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

14. Claims 13-20 and 24-33 are rejected under 35 U.S.C. 102(e) as being anticipated by US Patent No 6,226,408 to Sirosh (hereafter Sirosh).

Referring to claim 13, Sirosh discloses a method, comprising:

determining cluster centers in a first data structure, wherein the first data structure comprises a lattice structure of weight vectors that create an approximate representation of a plurality of input data points (see Fig 2); and

wherein a plurality of the weight vectors represents a single non-linear cluster (see column 4, lines 7-20);

performing a first iterative process for iteratively updating the weight vectors such that the weight vectors move toward the cluster centers (see column 4, line 64 – column 5, line 22);

performing a second iterative process for iteratively updating a second data structure [next layer] utilizing results of the iterative updating of the first data structure [takes as its input a set of vectors from the one previous layer] (see column 4, lines 57-63 and column 5, lines 23-31); and

determining, based on the second data structure, several sets of weight vectors in said lattice structure such that in each set, the weight vectors correspond to the same cluster centers of the input data points [Batch Neural Gas takes into account the location of all input vectors when updating the cluster centers] (see column 6, line 22 – column 7, line 33),

wherein the method is an unsupervised method that is configured to be suitable for an on-line system [unsupervised] (see column 3, lines 22-28).

Referring to claim 14, Sirosh discloses the method according to claim 13, wherein each iteration in the first iterative process comprises selecting a winner weight vector for each data point on the basis of the distance between the data point and the weight vectors, and calculating a next value for each weight vector on the basis of the current value of the weight vector and a first neighborhood function of the distance on the lattice structure between the weight vector and the winner weight vector, and wherein the second data structure comprises a first coefficient for each of the weight vectors in the lattice structure and each iteration in the second iterative process comprises calculating a next value of each first coefficient based on: the current value of the first coefficient, and a combination of a first coefficient of the winner weight vector, a second neighborhood function of the distance on the lattice structure between the

weight vector and the winner weight vector, and an adjustment factor for adjusting convergence speed between iterations (see column 6, lines 46 – column 7, line 42).

Referring to claim 15, Sirosh discloses the method according to claim 13, wherein the determining the weight vectors that correspond to cluster centers comprises selecting local maxima in the second data structure [ranking] (see column 7, lines 1-42).

Referring to claim 16, Sirosh discloses the method according to claim 14, wherein the combination is or comprises multiplication (see column 6, lines 46 – column 7, line 42).

Referring to claim 17, Sirosh discloses the method according claim 14, wherein the second neighborhood function is not monotonous (see column 9, lines 6-20).

Referring to claim 18, Sirosh discloses the method according to claim 14, wherein the first coefficients are limited to a range [0,1] and the second neighborhood function gives negative or positive values, respectively, for some distances (column 9, line 59).

Referring to claim 19, Sirosh discloses the method according to claim 14, wherein the second neighborhood function depends on a number of prior iterations (see column 9, lines 18-20).

Referring to claim 20, Sirosh discloses the method according to claim 13, wherein the input data points represent real-world quantities [real-world data] (Sirosh: see column 5, lines 52-58).

Referring to claim 24, Sirosh discloses a computer-readable program product comprising a computer program code embodied on a computer-readable medium, the computer readable program product being configured to control a processor to perform:

determining cluster centers in a first data structure, wherein the first data structure comprises a lattice structure of weight vectors that create an approximate representation of a plurality of input data points (see Fig 2); and

wherein a plurality of the weight vectors represents a single non-linear cluster (see column 4, lines 7-20);

performing a first iterative process for iteratively updating the weight vectors such that the weight vectors move toward the cluster centers (see column 4, line 64 – column 5, line 22);

performing a second iterative process for iteratively updating a second data structure [next layer] utilizing results of the iterative updating of the first data structure [takes as its input a set of vectors from the one previous layer] (see column 4, lines 57-63 and column 5, lines 23-31); and

determining, based on the second data structure, several sets of weight vectors in said lattice structure such that in each set, the weight vectors correspond to the same cluster centers of the input data points [Batch Neural Gas takes into account the location of all input vectors when updating the cluster centers] (see column 6, line 22 – column 7, line 33),

wherein the method is an unsupervised method that is configured to be suitable for an on-line system [unsupervised] (see column 3, lines 22-28).

Referring to claim 25, Sirosh discloses an apparatus, comprising:

first determination means for determining cluster centers in a first data structure, wherein the first data structure comprises a lattice structure of weight vectors that create an approximate representation of a plurality of input data points (see Fig 2); and

wherein a plurality of the weight vectors represents a single non-linear cluster (see column 4, lines 7-20);

first performance means for performing a first iterative process for iteratively updating the weight vectors such that the weight vectors move toward the cluster centers (see column 4, line 64 – column 5, line 22);

second performance means for performing a second iterative process for iteratively updating a second data structure [next layer] utilizing results of the iterative updating of the first data structure [takes as its input a set of vectors from the one previous layer] (see column 4, lines 57-63 and column 5, lines 23-31); and

second determination means for determining, based on the second data structure, several sets of weight vectors in said lattice structure such that in each set, the weight vectors correspond to the same cluster centers of the input data points [Batch Neural Gas takes into account the location of all input vectors when updating the cluster centers] (see column 6, line 22 – column 7, line 33),

wherein the apparatus is configured to operate using an unsupervised method that is configured to be suitable for an on-line system [unsupervised] (see column 3, lines 22-28).

Referring to claim 26, Sirosh discloses an apparatus, comprising:

a processor configured to

determine cluster centers in a first data structure, wherein the first data structure comprises a lattice structure of weight vectors that create an approximate representation of a plurality of input data points (see Fig 2); and

wherein a plurality of the weight vectors represents a single non-linear cluster (see column 4, lines 7-20);

perform a first iterative process for iteratively updating the weight vectors such that the weight vectors move toward the cluster centers (see column 4, line 64 – column 5, line 22);

perform a second iterative process for iteratively updating a second data structure [next layer] utilizing results of the iterative updating of the first data structure [takes as its input a set of vectors from the one previous layer] (see column 4, lines 57-63 and column 5, lines 23-31); and

determine, based on the second data structure, several sets of weight vectors in said lattice structure such that in each set, the weight vectors correspond to the same cluster centers of the input data points [Batch Neural Gas takes into account the location of all input vectors when updating the cluster centers] (see column 6, line 22 – column 7, line 33),

wherein the apparatus is configured to operate using an unsupervised method that is configured to be suitable for an on-line system [unsupervised] (see column 3, lines 22-28).

Referring to claim 27, Sirosh discloses the apparatus of claim 26, wherein the processor is further configured to: select a winner weight vector for each data point on the basis of the distance between the data point and the weight vectors; calculate a next value for each weight vector on the basis of the current value of the weight vector and a first neighborhood function of the distance on the lattice structure between the weight vector and the winner weight vector, and wherein the second data structure comprises a first coefficient for each of the weight vectors in the lattice structure and each iteration in the second iterative process comprises calculating a next value of each first coefficient based on: the current value of the first coefficient, and a combination of a first coefficient of the winner weight vector, a second neighborhood function of the distance on the lattice structure between the weight vector and the winner weight vector, and an adjustment factor for adjusting convergence speed between iterations (see column 6, lines 46 – column 7, line 42).

Referring to claim 28, Sirosh discloses the apparatus of claim 27, wherein the processor is further configured to determine the weight vectors that correspond to cluster centers comprises selecting local maxima in the second data structure [ranking] (see column 7, lines 1-42).

Referring to claim 29, Sirosh discloses the apparatus of claim 27, wherein the combination is or comprises multiplication (see column 6, lines 46 – column 7, line 42).

Referring to claim 30, Sirosh discloses the apparatus according claim 27, wherein the second neighborhood function is not monotonous (see column 9, lines 6-20).

Referring to claim 31, Sirosh discloses the apparatus according to claim 27, wherein the first coefficients are limited to a range [0,1] and the second neighborhood function gives negative or positive values, respectively, for some distances (column 9, line 59).

Referring to claim 32, Sirosh discloses the apparatus according to claim 27, wherein the second neighborhood function depends on a number of prior iterations (see column 9, lines 18-20).

Referring to claim 33, Sirosh discloses the apparatus according to claim 27, wherein the input data points represent real-world quantities [real-world data] (Sirosh: see column 5, lines 52-58).

Claim Rejections - 35 USC § 103

15. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

16. **Claims 21-23 and 34-36 are rejected under 35 U.S.C. 103(a) as being unpatentable over US Patent No 6,226,408 to Sirosh (hereafter Sirosh) as applied to claims 14 and 27 above, and further in view of US Patent No 5,809,490 to Guiver et al (hereafter Guiver).**

Referring to claims 21 and 34, Sirosh fails to explicitly disclose the further limitation wherein the first data structure is or comprises a self-organizing map. Guiver

discloses an unsupervised clustering model which includes a first data structure (see abstract), wherein the first data structure is or comprises a self-organizing map (see column 7, lines 4-9).

It would have been obvious to one of ordinary skill in the art at the time of the invention to utilize the self-organizing map of Guiver as the type of first data structure disclosed by Sirosh. One would have been motivated to do so since Sirosh discloses unsupervised clustering, and it is well-known to one of ordinary skill in the art that a self-organizing map is just one of many unsupervised clustering techniques.

Referring to claims 22 and 25, the combination of Sirosh and Guiver (hereafter Sirosh/Guiver) teaches estimating an upper limit K for a number of clusters in the self-organizing map (Guiver: see column 6, lines 8-11 "It also computes a cutoff level K in step 252. As previously indicated, the cut-off level K is selected as some fraction of the average number of examples per cluster such as 70%." Examiner interprets the "cutoff level" to be equivalent to the "upper limit" as described in the claim.);

defining a coefficient vector .THETA.i=(.theta..sub.i,1, .theta..sub.i,2, ...theta..sub.i,K) for each weight vector i in the self-organizing map, the coefficient vector comprising K second coefficients .theta..sub.i,l, each of which represents a weighting between the weight vector i and a label l (Guiver: see column 9, lines 48-53 "After weights of the neighboring neurons have been adjusted, the learning coefficient alpha is maintained or decreased over each iteration in step 194. For instance, alpha may start at a value such as 0.4 and decrease over time to 0.1 or lower. Similarly, the neighborhood $N_{cicj}(t)$ is either maintained or shrunk in step 196."); and

assigning cluster label l to weight vector i if: l=arg max .theta..sub.i,k. 1.ltoreq.k.ltoreq.K (Guiver: see column 10, lines 27-30 “The Kohonen neuron with the minimum distance is called the winner and has an output of 1.0, while the other Kohonen neurons have an output of 0.0”) - In the instant application, the cluster label l is referred to as the “winner”.)

Referring to claims 23 and 36, Sirosh/Guiver teaches the further limitation wherein each iteration in the second iterative process comprises calculating a next value of each second coefficient based on the current value of the second coefficient and a combination of: a coefficient of the winner weight vector, a third neighborhood function of distance (Guiver: see column 10, lines 6-12 “In each pass through the network, the node with a minimum distance between the input and its weight vector is considered the winner. Every node in the neighborhood is updated so that their weight vectors move toward the winner’s vectors”); and

an adjustment factor for adjusting convergence speed between iterations (Guiver: see column 9 line 66 – column 10 line 2 “The neighbors of the winning neuron also adjust their weights to be closer to the same input data vector. The adjustment of neighboring neurons is instrumental in preserving the order of the input space in the SOM.”)

Response to Arguments

17. Applicant's arguments filed 15 September 2008 have been fully considered but they are not persuasive.

18. Referring to Applicant's arguments on pages 11-12 of the Remarks in regards to the objection to the specification, the Applicant states “Applicant respectfully submits that one of ordinary skill in the art with the disclosure of the Specification would have understood that a computer-readable program product is inherently embodied on a medium, such as a computer-readable medium. Therefore, an explicit definition of the term “computer-readable medium” is unnecessary in view of such knowledge possessed by one of ordinary skill in the art.”

The examiner respectfully disagrees that an explicit definition is unnecessary. While one of ordinary skill in the art might have understood that a computer-readable program product is inherently embodied on a medium, one of ordinary skill would not know the intended metes and bounds of the term. As mentioned above in the rejection, the term can be interpreted by one of ordinary skill in the art to cover nonstatutory embodiments, such as signals. Therefore, it is suggested that the Applicant amend the specification in order to include an explicit definition of the term computer-readable medium to limit the term to statutory embodiments since it is necessary.

19. Referring to Applicant’s arguments on pages 12-13 of the Remarks in regards to the 35 USC 101 rejection of claim 24, the Applicant states “Applicant respectfully submits that claim 24 recites statutory subject matter directed to a computer-readable

program product comprising a computer program code embodied on a computer-readable medium."

The examiner respectfully disagrees for the reasons stated above in the rejection and the response to the argument in regards to the objection to the specification. The term "computer-readable medium" is not defined within the specification and therefore fails to be limited to statutory embodiments.

20. Referring to Applicant's argument on pages 16-17 of the Remarks in regards to the rejections of claims 13 and 24-26, the Applicant states "Specifically, Sirosh fails to disclose or suggest, at least "performing a first iterative process for iteratively updating the weight vectors such that the weight vectors move toward the cluster centers; performing a second iterative process for iteratively updating a second data structure utilizing results of the iterative updating of the first data structure; and determining, based on the second data structure, several sets of weight vectors in said lattice structure such that in each set, the weight vectors correspond to the same centers of the input data points" as recited in claim 13, and similarly recited in claims 24-26."

The Applicant further clarifies the argument by stating on page 18 of the Remarks "Sirosh fails to mention performing a first iterative process and a second iterative process as disclosed in claim 13, and similarly recited in claims 24-26. Rather Sirosh merely discloses a single iterative process as described in column 4, lines 57-64."

The examiner respectfully disagrees that Sirosh discloses a single iterative process. Sirosh first updates weight vectors [first process] and then applies these

updates to the next layer [second layer]. While the claim states that a first process is performed iteratively and a second process is performed iteratively, the claim language fails to explicitly state when these iterative processes are performed. Therefore, even though Sirosh executes the first process and then the second process and then repeats the processing of the first and second processes, this is considered to meet the requirements of the claim limitations when the limitations are given the broadest reasonable interpretation reasonable to one of ordinary skill in the art.

Referring to Applicant's argument on page 19 of the Remarks, the Applicant states “Furthermore, Sirosh fails to mention that the weight vectors move toward the cluster centers."

The examiner respectfully disagrees. Sirosh teaches the concept of iteratively updating weight vectors. For further clarification, Sirosh states “After each layer is processed, each of the input vectors is associated with the closest one of the cluster centers defined at the layer ... (see column 5, lines 28-31).” Therefore, the result of the updating is that the weight vectors move toward the cluster centers.

On page 20 of the Remarks, the Applicant goes on to state “Hence, Sirosh fails to disclose or suggest that the selection of the set of K data vectors is determined based on the second set of encoded vectors 124 presented as input vectors to the next layer, for which the Office Action, on page 5, indicated as the "second data structure." Therefore, Sirosh fails to disclose or suggest, at least, “determining, based on the second data structure, several sets of weight vectors in said lattice structure such that in

each set, the weight vectors correspond to the same cluster centers of the input data points" as recited in claim 13, and similarly recited in claims 24-26."

The examiner respectfully disagrees. Sirosh in column 6, lines 41-45 teaches that the cluster center is normalized after each pass through the data. Each pass results in performing the first process and the second process. Therefore, the weight vectors are considered to be based on the second data structure.

21. The rejections of claims 14-25 and 27-36 are maintained for the reasons stated above.

Conclusion

22. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Contact Information

Any inquiry concerning this communication or earlier communications from the examiner should be directed to KIMBERLY LOVEL whose telephone number is (571)272-2750. The examiner can normally be reached on 8:00 - 4:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, John Cottingham can be reached on (571) 272-7079. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/John R. Cottingham/
Supervisory Patent Examiner, Art Unit 2167

/Kimberly Lovel/
Examiner
Art Unit 2167

30 December 2008
/kml/